**CLAIM AMENDMENTS**

Please amend the claims as follows:

1. (Currently amended): An agropolymer comprising a carbohydrate ~~and/or~~ and silica matrix obtained from an agricultural crop selected from the group consisting of *Oryza sativa, Panicum miliaceum, Setaria italica, Cajanus cajan, Vigna mungo, Vigna radiata, Triticum sp., Ricinus communis, Helianthus annus, Gossypium sp.*, and *Arachis sp*, said carbohydrate ~~and/or~~ and silica matrix being substantially devoid of proteins, tannins and polyphenols, said matrix further comprising metal binding reactive sites.

2. (Currently amended): The agropolymer of claim 1, wherein said carbohydrate ~~and/or~~ and silica matrix is obtained from plant parts of said agricultural crop, said plant parts being selected from the group consisting of seed coats, seed covers, hulls, and husks.

3. (Original): The agropolymer of claim 2, wherein said plant parts are micronized, and wherein said micronized plant parts are treated with ferric chloride and dried, said treated micronized plant parts subsequently being subjected to infrared spectroscopy, thereby revealing reactive, organometallic bonds.

4. (Previously presented): The agropolymer of claim 3, wherein said micronized plant parts are derived from a husk of *Triticum sp*, and wherein said plant parts, after undergoing infrared spectroscopy reveal organometallic bonds at 2360 ± 10 and 2340 ± 10 wave numbers ($cm^{-1}$).

5. (Previously presented): The agropolymer of claim 3, wherein said micronized plant parts are derived from a member of the group consisting of a seed coat of *Gossypium sp* and a seed coat of *Vigna radiata*, and wherein said plant parts, after first undergoing alkaline hydrogen peroxide treatment, reveal organometallic bonds, through infrared spectroscopy at 2360 ± 10 and 2340 ± 10 wave numbers ($cm^{-1}$).

6. (Previously presented): The agropolymer of claim 3, wherein said micronized plant parts are derived from a member of the group consisting of a seed coat of *Panicum miliaceum*, a seed coat of *Setaria italica*, a seed coat of *Cajanus cajan*, a seed coat of *Vigna mungo*, a seed coat of *Ricinus communis*, and a seed coat of *Helianthus annus*, and wherein said plant parts, after first undergoing alkaline hydrogen peroxide treatment, reveal organometallic bonds characteristic of said plant parts.

7-23. (Canceled).

24. (Currently amended): An agropolymer consisting of a carbohydrate and/or and silica matrix obtained from an agricultural crop selected from the group consisting of Oryza sativa, Panicum miliaceum, Setaria italica, Cajanus cajan, Vigna mungo, Vigna radiata, Triticum sp., Ricinus communis, Helianthus annus, Gossypium sp., and Arachis sp, said carbohydrate and/or and silica matrix being substantially devoid of proteins, tannins and polyphenols, said matrix further comprising metal binding reactive sites.

25. (Currently amended): The agropolymer of claim 24, wherein said carbohydrate a and/or and silica matrix is obtained from plant parts of said agricultural crop, said plant parts being selected from the group consisting of seed coats, seed covers, hulls, and husks.

26. (Previously presented): The agropolymer of claim 25, wherein said plant parts are micronized, and wherein said micronized plant parts are treated with ferric chloride and dried, said treated micronized plant parts subsequently being subjected to infrared spectroscopy, thereby revealing reactive, organometallic bonds.

27. (Previously presented): The agropolymer of claim 26, wherein said micronized plant parts are derived from a husk of Triticum sp, and wherein said plant parts, after undergoing infrared spectroscopy reveal organometallic bonds at 2360 ± 10 and 2340 ± 10 wave numbers (cm-1).

28. (Previously presented): The agropolymer of claim 26, wherein said micronized plant parts are derived from a member of the group consisting of a seed coat of Gossypium sp and a seed coat of Vigna radiata, and wherein said plant parts, after first undergoing alkaline hydrogen peroxide treatment, reveal organometallic bonds, through infrared spectroscopy at 2360 ± 10 and 2340 ± 10 wave numbers (cm-1).

29. (Previously presented): The agropolymer of claim 26, wherein said micronized plant parts are derived from a member of the group consisting of a seed coat of *Panicum miliaceum*, a seed coat of *Setaria italica*, a seed coat of *Cajanus cajan*, a seed coat of

*Vigna mungo*, a seed coat of *Ricinus communis*, and a seed coat of *Helianthus annus*, and wherein said plant parts, after first undergoing alkaline hydrogen peroxide treatment, reveal organometallic bonds characteristic of said plant parts.

30. (Currently amended): An agropolymer comprising a carbohydrate ~~and/or~~ and silica matrix,

wherein said matrix is obtained from plant parts of an agricultural crop,

wherein said agricultural crop is selected from the group consisting of *Oryza sativa, Panicum miliaceum, Setaria italica, Cajanus cajan, Vigna mungo, Vigna radiata, Triticum sp., Ricinus communis, Helianthus annus, Gossypium sp.*, and *Arachis sp*,

wherein said matrix is substantially devoid of proteins, tannins, and polyphenols,

wherein said matrix further comprises metal-binding reactive sites,

wherein said plant parts are selected from the group consisting of seed coats, seed covers, hulls, and husks,

wherein said plant parts are micronized,

wherein said micronized plant parts have been treated with alkali and/or hydrogen peroxide, and

wherein said treated, micronized plant parts enhance the ability of the agropolymer to sequester ions from water.